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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER				
PATEL, DEVANG R				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/571,881

**Applicant(s)**

FEUZ ET AL.

**Examiner**

DEVANG PATEL

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 March 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-12 is/are rejected.  
7) ☒ Claim(s) 1 and 2 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 15 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 3/15/06  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

**Claims 1-2** are objected to because of the following informalities: Claims 1-2 include multiple sentences. The claim should be corrected to recite all elements in a single sentence. For instance, apparatus claim 1 may include a wherein clause which further includes a computer and defines the arrangement of the senders and the receivers. Appropriate correction is required.

For the purpose of examination, the claims are interpreted as if there were semicolons between multiple sentences.

### ***Claim Interpretation- 35 USC § 112***

**Regarding claim 4**, the claim limitation "means for removing and for keeping..." has properly invoked 35 U.S.C. 112, sixth paragraph by satisfying the 3-prong test set forth in MPEP 2181, and therefore, the limitation is being treated under 35 U.S.C. 112, sixth paragraph. The "means for removing and for keeping removed contaminations from the sensitive outer surface" is disclosed in the specification as being a cleaning air duct 11 [¶ 30].

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 3, 8, and 10** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired.

See *MPEP* § 2173.05(c). In the present case, claim 3 recites the broad recitation "beam conducting fibers", and the claim also recites "preferably quartz fibers" which is the narrower limitation. Claim 8 recites the broad recitation "20 to 200 micron", and the claim also recites "preferably 50 micron" which is the narrower statement of the range/limitation. Similarly, claim 10 recites the broad recitation "a source of light", and the claim also recites "preferably white light" which is the narrower statement.

For the purpose of examination, the claims are interpreted to cover the broader limitation.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-3** are rejected under 35 U.S.C. 102(b) as being anticipated by Ban et al. (US 4787749).

- a. **Regarding claim 1**, Ban et al. ("Ban") discloses an apparatus for continuous measurement of film thickness (i.e. coating layer) on a wafer 41 (workpiece) placed on a movable stage unit 2 (fig. 3b; col. 1, lines 8-11). The apparatus include a fiber probe 3 (sensor) with a plurality of senders 3a of measuring beams and a plurality of receivers 3b for measuring beams reflected from the coating layer; the senders 3a and the receivers 3b are arranged in intermixed condition with one another, and a computer 5 (fig. 3a) generates a continuous measuring signal based on the two parameters of emitted and received measuring beams (col. 4, line 37 thru col. 5, line 14).
- b. **As to claim 2**, Ban discloses the senders and receivers collectively positioned in groupwise fashion; each group having its own source of measuring beams, its own detector, and computer for forming a measured signal (fig. 3).
- c. **As to claim 3**, Ban discloses the senders 3a connected with a beam source 1a and the receivers connected with the detector 1c by way of optical fibers (i.e. beam conducting fibers).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al. (US 4787749) as applied to claim 1 above, and in view of Yamada (US 5635973).

d. **As to claim 4**, Ban does not disclose means for removing and for keeping removed contaminants from the outer surface of the sensor. Yamada discloses an air suction nozzle 52 provided in the vicinity of the image sensor 24, so as to effectively clean the outer surface of the image sensor 24 (fig. 7; col. 5, lines 60-65). Such air nozzle of Yamada is equivalent to claimed cleaning air duct means. It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate air nozzle similar to Yamada in the sensor apparatus of Ban in order to clean dust from the sensor surface and thus maintain accurate detection of reflected beams.

5. **Claim 4** is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al. (US 4787749) as applied to claim 1 above, and in view of Enomoto (JP 09259217 A).

e. **As to claim 4**, Ban does not disclose means for removing and for keeping removed contaminants from the outer surface of the sensor. **Enomoto** is directed to a code reader and discloses cleaning means for protecting the sensor surface of the code reader. Enomoto discloses air blowing nozzle 12 having its tip directed to the sensor surface 11a to clean the surface and thus prevent dust accumulation (fig. 3; abstract). Such air nozzle of Enomoto is equivalent to claimed cleaning air duct means. It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate an air duct

similar to Enomoto in the sensor apparatus of Ban because it would clean the sensor surface and thus prevent dust accumulation to permit accurate detection of reflected beams.

6. **Claims 5 and 7-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al. (US 4787749) as applied to claim 2 above, and in view of Fukuda et al. (US 6431769), and further in view of Enomoto (JP 09259217 A).

f. **As to claim 5**, the thickness detection apparatus of Ban is capable of being integrated into a powder arm for coating of a powder layer onto a can sheet material. The senders and receivers 3a/b of Ban are arranged in a sensor head 1, connected by beam conduction fibers (optical fibers), with beam source 1a and detector 1c, and operably connected to a computer for generating a measuring signal (fig. 3). Ban fails to disclose the sensor head having an exchangeable cover for limiting width of the sensor. However, **Fukuda et al.** (drawn to substrate coating and processing system) discloses a protection cover 75 attached to a coating film thickness sensor 64 (fig. 10). The opening and closing of the cover is controlled by the film thickness sensor control unit 68, and thus, the cover intrinsically limits the measuring width of the sensor. It is reasonable to expect that the cover is exchangeable since it would be detached from the sensor head when replacement is required. Fukuda teaches that such cover protects the sensor from being contaminated (col. 8, lines 23-32). It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate cover similar to Fukuda in the detection apparatus of Ban

in order to protect the sensor from being contaminated. Ban does not disclose cleaning means for protecting the sensor surface. **Enomoto** is directed to a code reader and discloses cleaning means for protecting the sensor surface of the code reader. Enomoto discloses air blowing nozzle 12 having its tip directed to the sensor surface 11a to clean the surface and thus prevent dust accumulation (fig. 3; abstract). It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate air duct similar to Enomoto in the sensor apparatus of Ban because it would clean the sensor surface and thus prevent dust accumulation to permit effective detection. The collective disclosures of Ban, Fukuda and Enomoto discloses the sensor head having an exchangeable cover and cleaning means, both providing protection of the sensitive sensor surface.

g. **As to claim 7**, the air nozzle of Enomoto in the modified apparatus of Ban is equivalent to cleaning channel running over the sensor surface. The cover of Fukuda in the apparatus of Ban would be penetrated in the region of the senders and receivers.

h. **As to claim 8**, Ban discloses the fiber probe having an approximate diameter of 2000 micron. It would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed range of fiber diameter through routine experimentation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the



optimum or workable ranges involves only routine skill in the art. *See MPEP 2144.05.*

i. **As to claim 9**, Ban discloses multiple senders and receivers arranged in a line, but it is unclear whether Ban discloses three groups of senders and receivers. However, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide three groups of senders and receivers arranged in a line since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *See MPEP 2144.04.*

j. **As to claim 10**, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a fourth group with only senders, being connected to a light source with optical fibers, for the reasons set forth in claim 9 above.

7. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al. (US 4787749) in view of Fukuda et al. and Enomoto (JP 09259217 A) as applied to claim 2 above, and further in view of Adams (US 6019504, of record).

k. **As to claim 6**, Ban discloses a light source providing beams of a single wavelength or of a very narrow wavelength range, but is silent as to infrared beams. However, such is well-known in the art. Adams (drawn to photothermal examination of workpiece surfaces) discloses a method and apparatus using laser/IR for measuring the coating film (such as powder coat) thickness on workpiece (col. 2, lines 17-20, lines 50-62). Adams also discloses that it is known

in the art to utilize laser/infrared beams for surface examination (col. 1, lines 16-30). Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to employ infrared beams as a light source in the apparatus of Ban because using laser/IR is well-known in the art.

8. **Claims 11-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al. (US 4787749) as applied to claim 1 above, and in view of Steiger (EP 1112801 A2, of record).

I. **As to claims 11-12**, Ban does not disclose the apparatus being employed in can welding machine with a seam covering arrangement. Steiger is directed to an apparatus for continuous monitoring of powder layer at the seam welding zone for cans including a light beam directed at the zone and a computer to evaluate the reflected light. Similar to Ban, Steiger discloses light sources 37 and detecting sensors 23, and a computer 35 for analyzing reflected light in order to measure the thickness of the powder layer (fig. 1; ¶ 10-11). It would have been obvious to a person of ordinary skill in the art at the time of the invention to substitute the measuring apparatus of Steiger with the measuring apparatus of Ban in the can welding machine of Steiger because it provides accurate measurement of the film thickness (Ban- col. 1, lines 55-66).

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 3/15/06 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Conclusion***

#### **Claims 1-12 are rejected.**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 5410154, US 5841094, US 20010043984.

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devang Patel/  
Examiner, Art Unit 1793

/Kiley Stoner/  
Primary Examiner, Art Unit 1793